

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus comprising:
a tether having a length suitable-configured for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle;
~~a deformable~~an aptation device coupled about an axis of the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether and that is deformable in response to forces applied to the aptation device by cusps of an atrioventricular valve; and
a fastening member coupled to the tether including a projection capable of anchoring the fastening member to a wall of a ventricle of a heart,
wherein the tether and aptation device are suitable for percutaneous delivery to a patient.
and
wherein the tether extends through the aptation device and the distal end of the tether extends beyond a distal end of the aptation device.
2. (Canceled)
3. (Previously Presented) An apparatus comprising:
a tether having a length suitable for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle wherein the tether comprises a sheath and a duplex spring, wherein the sheath surrounds the duplex spring about a length of the duplex spring;
an aptation device coupled to the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether; and
a fastening member including a projection capable of anchoring the fastening member to a wall of a ventricle of a heart,

wherein the tether and aptation device are suitable for percutaneous delivery to a patient, and

wherein the distal end of the tether extends beyond a distal end of the aptation device.

4. (Original) The apparatus of claim 3, wherein the sheath of the tether comprises a material that resists thrombosis.

5. (Original) The apparatus of claim 1, wherein the tether comprises sufficient torsional stiffness to respond in kind at the distal end to a torque applied at the proximal end.

6. (Previously Presented) The apparatus of claim 1, wherein the fastening member is coupled to a distal end of the tether and the tether comprises sufficient tensile stiffness to withstand an extension of the tether in response to ventricular pressure changes.

7. (Currently Amended) The apparatus of claim 1, wherein the fastening member is coupled to a distal end of the tether ~~comprises a fastening member and is~~ adapted to couple the tether to a wall of a ventricle in response to a torque applied to the proximal end of the tether.

8. (Previously Presented) An apparatus comprising:

a tether having a length suitable for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle;

an aptation device coupled to the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether; and

a fastening member including a helical anchor coupled to a distal end of the tether having a length that may be completely embedded in a wall of a ventricle,

wherein the tether and aptation device are suitable for percutaneous delivery to a patient, and

wherein the distal end of the tether extends beyond a distal end of the aptation device.

9. (Original) The apparatus of claim 8, wherein the helical anchor comprises a barbed coiled spring.

10. (Previously Presented) An apparatus comprising:

a tether having a length suitable for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle;

an aptation device coupled to the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether; and

a fastening member comprising a projection capable of anchoring the fastening member to a wall of a ventricle of a heart,

wherein the tether and aptation device are suitable for percutaneous delivery to a patient.

wherein the distal end of the tether extends beyond a distal end of the aptation device, and

wherein the distal end of the tether comprises a fastening member adapted to couple the tether to a wall of a ventricle in response to a torque applied to the proximal end of the tether and a patch having a cross-sectional area greater than a cross-sectional area of the tether and coupled about an axis of the tether at a portion proximal to the fastening member.

11. (Previously Presented) An apparatus comprising:

a tether having a length suitable for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle;

an aptation device coupled to the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether; and

a fastening member including a projection capable of anchoring the fastening member to a wall of a ventricle of a heart,

wherein the tether and aptation device are suitable for percutaneous delivery to a patient,

wherein the distal end of the tether extends beyond a distal end of the aptation device, and

wherein the tether has a length suitable for extending, at a proximal end, through an interatrial septum, the apparatus further comprising a patch having a cross-sectional area greater than a cross-sectional area of the tether and coupled about an axis of the tether at a portion, when the tether is placed through an interatrial septum and coupled at its distal end to a wall of a ventricle, that is proximal to the interatrial septum.

12. (Original) The apparatus of claim 11, further comprising a fastening member adapted to fasten a distal side of the patch to the interatrial septum.

13. (Original) The apparatus of claim 12, further comprising a stop coupled to the tether at a position on the proximal side of the patch.

14. (Withdrawn) The apparatus of claim 1, further comprising a ring having a diameter corresponding to an inner diameter of an atrioventricular valve annulus, wherein the aptation device is coupled at a proximal end to the ring.

15. (Withdrawn) The apparatus of claim 14, wherein the ring comprises a bridge extending across the ring and the aptation device is coupled to the bridge.

16. (Withdrawn) The apparatus of claim 15, wherein the bridge has an arcuate shape such that when positioned within an atrioventricular valve annulus, a portion of the bridge resides in an atrium.

17. (Previously Presented) The apparatus of claim 1, wherein the aptation device is coupled about the tether at a position corresponding to a position between cusps of an atrioventricular valve when the tether is positioned through an atrioventricular valve, and having a size suitable, when placed between cusps of an atrioventricular valve, that the cusps will aptate against the aptation device.

18. (Original) The apparatus of claim 17, wherein the aptation device comprises a cylindrical body.
19. (Original) The apparatus of claim 17, wherein a proximal end of the aptation device is coupled about an axis of the tether.
20. (Original) The apparatus of claim 17, wherein the aptation device comprises an ellipsoid body.
21. (Withdrawn) The apparatus of claim 17, wherein the aptation device comprises one of a conical body and a tear drop shaped body.
22. (Previously Presented) An apparatus comprising:
 - a tether having a length suitable for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle;
 - an aptation device coupled to the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether; and
 - a fastening member including a projection capable of anchoring the fastening member to a wall of a ventricle of a heart,
 - wherein the tether and aptation device are suitable for percutaneous delivery to a patient,
 - wherein the distal end of the tether extends beyond a distal end of the aptation device, and
 - wherein the aptation device is coupled to the tether at a position corresponding to a position completely within an atrium during systole when the tether is positioned through an atrioventricular valve, such that one or both cusps contact a surface of the aptation device during systole.
23. (Original) The apparatus of claim 1, wherein the aptation device has a size that is less than a commissure of the cusps of the atrioventricular valve.

24. (Withdrawn) The apparatus of claim 23, wherein the aptation device comprises a disc-shaped body.
25. (Withdrawn) The apparatus of claim 24, wherein the aptation device comprises a superior surface and an inferior surface, and the inferior surface comprises a ridged surface topography.
26. (Withdrawn) The apparatus of claim 24, wherein the aptation device has at least one hole extending between the superior surface and the inferior surface.
27. (Withdrawn) The apparatus of claim 24, wherein the aptation device comprises a body having a marginal section along a longitudinal axis making the aptation device susceptible to plication along the marginal section, the apparatus further comprising:
a sleeve coupled to the tether and positioned proximal to the aptation device, the sleeve having a dimension sufficient to minimize the plication of the aptation device in one direction.
28. (Original) The apparatus of claim 1, wherein the aptation device comprises a material that inhibits thrombosis.
29. (Withdrawn) The apparatus of claim 1, wherein the aptation device comprises a visualization marker.
30. (Previously Presented) An apparatus comprising:
a tether having a length suitable for extending through a ventricle of a heart from, at a proximal end, an atrioventricular valve annulus to, at a distal end, one of a wall of a ventricle and a papillary muscle within the ventricle;
an aptation device coupled to the tether at a position corresponding to a location to contact cusps of an atrioventricular valve during systole, the aptation device comprising a body having a cross-sectional dimension greater than a cross-sectional dimension of the tether; and

a fastening member including a projection capable of anchoring the fastening member to a wall of a ventricle of a heart,

wherein the tether and aptation device are suitable for percutaneous delivery to a patient, wherein the distal end of the tether extends beyond a distal end of the aptation device,

and

wherein the tether comprises a conductive lead.

31. (Original) The apparatus of claim 1, wherein a coupling point of the aptation device to the tether is adjustable.

Claims 32-72: (Canceled)